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ABSTRACT

An evaluation was done of the first year of a 2-year renewal program at three high schools in New York City, Harmony in Career Learning and Scholastic System (Project HI-CLASS), designed to provide support services to students of limited English proficiency (LEP). The project proposed to provide individualized instruction focusing on basic skills, career development, and preoccupational training; instruction in English as a Second Language (ESL), Native Language Arts (NLA) in Spanish and Chinese, and bilingual content areas; a bilingual newsletter at each project site; after-school tutoring and cultural enrichment activities; a 5-week summer institute for testing, placement, and remedial help; staff development with workshops and tuition assistance for continuing education; a parental component with ESL and high school equivalency classes and a bilingual parents' advisory committee; and curriculum materials. During the 1991-92 school year, the project enrolled 325 Spanish, 230 Chinese, and 4 other 9th through 12th grade students. Project HI-CLASS met its objectives for NLA, attitude toward heritage, cultural enrichment, career development, and parental involvement. It met one objective for staff development; and it partially met its objectives for attendance, dropout prevention, and content area subjects. The project failed to meet its ESL objective and one objective for staff development. Recommendations for program improvement are suggested. Appendixes describe data collection and analysis and instructional materials. (RLC)

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OREA Report

Harmony in Career Learning and Scholastic System (Project HI-CLASS)
Transitional Bilingual Education Grant T003A80262
1991-92

FINAL EVALUATION PROFILE

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Harmony in Career Learning and Scholastic System
(Project HI-CLASS)
Transitional Bilingual Education Grant T003A80262
1991-92

FINAL EVALUATION PROFILE

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FOREWORD

The body of this report is preceded by an Extract which presents an overview of salient points of the project: funding cycle; enrollment figures; background of students served; admission criteria; and programming features, strengths, and limitations, including the outcome of all objectives. The extract also presents the conclusions drawn by the Office of Research, Evaluation, and Assessment (OREA) about the program and its recommendations for program improvement.

The extract is followed by the body of the report, titled Program Assessment. This includes such information as staffing, program implementation, and outcome and implementation objectives. Instructional objectives are presented first, followed by noninstructional objectives. The report then addresses those aspects of programming mandated by Title VII regulations that do not have specifically stated objectives. This may be information on attendance and dropout rate, grade retention, mainstreaming, referrals out of the program to meet special needs of the students, and withdrawals. A case history concludes the report.

Data for this profile were collected and analyzed using a variety of procedures, which are described in Appendix A following the text.

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Office of Research, Evaluation, and Assessment
New York City Public Schools

E.S.E.A. Title VII Evaluation Profile

Harmony in Career Learning and Scholastic System
(Project HI-CLASS)

Transitional Bilingual Education Grant T003A80262
1991-92

EXTRACT

PROJECT DIRECTOR: Mr. Paul Wong

FUNDING CYCLE: Year 1 of a 2-year renewal

SITES

Site	Borough	Grade Levels	Enrollment* (fall)	Enrollment* (spring)
Lower East Side Prep	Manhattan	9-12	22	55
Liberty High School	Manhattan	9-12	172	135
Richmond Hill High School	Queens	9-12	156	170
		Total	350	360

*The project enrolled 559 students (94 less than in the previous year), 254 of whom participated both semesters. Male students numbered 242, female 246; gender was not stated for 71.

STUDENT BACKGROUND

Native Language	Number of Students
Spanish	325
Chinese	230
Mandarin	108
Cantonese	114
Other	8
Other	4

Countries of Origin	Number of Students
Dominican Republic	185
China	121
Burma	108
Ecuador	39
Colombia	19
El Salvador	16
Honduras	13
Puerto Rico	13
Guatemala	9
Mexico	8
United States	7
Venezuela	7
Peru	6
Other Countries	6
Unreported	2

Median Years of Education in Native Country: 8.0; in the United States: 2.0

Percentage of Students Eligible for Free Lunch Program: 56.0

Most students were recent immigrants to the United States. Many came from countries in political conflict and had not, therefore, received a stable education. Most students worked after school to supplement the family income.

ADMISSION CRITERIA

The project admitted students who scored at or below the 40th percentile on the Language Assessment Battery (LAB) and were thus classified as being of limited English proficiency (LEP). When selecting students, project staff also took into consideration information garnered from personal interviews with students and parents, evaluation of transcripts, and teacher and counselor recommendation.

PROGRAMMING

Design Features

Project HI-CLASS was designed to provide support services to LEP students at three high schools with an ongoing influx of immigrants. The project proposed to provide students with individualized instruction focusing on basic skills, career development, and pre-occupational training. Services were to include instruction in English as a Second Language (E.S.L.) and Native Language Arts (N.L.A.), and bilingual instruction in content area subjects. Also proposed was a bilingual newsletter at each project site. The proposal included plans for after-school tutoring and cultural enrichment activities and a five-week summer institute for testing, placement, and remedial help. Staff development was to include regular workshops and tuition assistance for continuing education. A parental component provided E.S.L. and high school equivalency classes and a bilingual parents' advisory committee. In addition, the project proposed to develop curriculum materials.

Capacity building. Project HI-CLASS plans to continue to provide services after the termination of its two-year funding renewal. Beginning in September 1994, cultural trips, parental training, and bilingual counseling will be funded by tax-levy monies. Career training will be continued with tax-levy funds. The funding for E.S.L. and bilingual classes will be provided by Pupils with Compensatory Educational Needs (P.C.E.N.) monies.

Strengths and Limitations

Project staff reported that the provision of bilingual guidance services was very effective. Additional project strengths included career advisement, computer literacy instruction, and individualized instruction. Each of the three sites had a bilingual parent advisory committee. Project staff and students produced a newsletter at each site, and classes were offered to parents at two of the sites. Staff carried out curriculum development cooperatively with other Title VII project staffs.

Staff felt that additional equipment, supplies, and personnel would allow them to implement the program more effectively and enable them to extend greatly needed services to a larger student population.

CONCLUSIONS AND RECOMMENDATIONS

As it had done last year, Project HI-CLASS met its objectives for N.L.A. and attitude toward heritage. It also met the objectives for cultural enrichment, career development, and parental involvement, which could not be evaluated last year. It met one objective for staff development which OREA had been unable to evaluate last year. As in the previous year, the project partially met its objectives for attendance and dropout prevention. The objective for content area subjects was partially met this year, but fully met last year. As in the previous year, the project failed to meet its objective for E.S.L. It failed to meet one objective for staff development which was met last year.

The conclusions, based on the findings of this evaluation, lead to the following recommendations:

- Explore reasons why the percentage of students showing a gain in English language proficiency was less than half the targeted amount, and seek to rectify the problems.

- Augment content area subject instruction in those subjects and at those schools where fewer than 70 percent of students passed their courses. Consider initiating a program of peer tutoring and after-school individualized instruction by resource teachers and/or paraprofessionals.

- Attempt to increase the attendance rate of project students at Richmond Hill High School, possibly by putting greater stress on the importance of attendance in both individual and group guidance sessions.

- Encourage staff to enroll in university courses.

STAFFING

Title VII Staff (Total 7)

Title	Degree	Language Competencies	Title VII Funding
Project Director	M.A.	Chinese	Full time
Resource Teacher	M.A.	Chinese	Full time
Resource Teacher	M.A.	Spanish	Full time
Resource Teacher	M.A.	Spanish	Full time
Paraprofessional	M.A.	Chinese	Full time
Paraprofessional	High School	Chinese	Full time
Paraprofessional	High School	Spanish	Full time

Other Staff Working with Project Students (Total 42)

Title		Degrees	Certification		Language Competencies and Teaching/ Communicative Proficiencies (TP/CP)*	
Teacher	40	Ph.D. 1	E.S.L.	11	Spanish	TP 19, CP 2
Paraprofessional	2	M.A. 21	Mathematics	5	Chinese	TP 16
		M.S. 7	Bil. Math.	4	Hebrew	TP 1
		B.A. 11	Social studies	5	Italian	TP 1
		H.S. 2	Science	2		
			English	2		
			Spanish	9		
			Chinese	2		
			Bil. Education	2		
			Spec. Educ.	2		
			Administration	1		

All teachers had certification in the areas they served except for four. Two teachers were certified in mathematics but one taught social studies and the other science. One teacher was certified in bilingual special education but taught science. Another was certified in Spanish but taught mathematics.

*Teaching Proficiency (TP): Competent to teach in this language.
Communicative Proficiency (CP): Conversational capability only.

IMPLEMENTATION AND OUTCOMES (Objectives prefaced by •)

English as a Second Language (E.S.L.)

E.S.L. CLASSES

Sites	Level	Periods Weekly	Students Enrolled
Liberty High School	Literacy	10	41
	Beginning	10	113
	Intermediate	10	12
Lower East Side Prep	Literacy	15	20
	Beginning	15	150
	Intermediate	15	5
Richmond Hill High School	Literacy	5	62
	Beginning	5	75
	Intermediate	5	13

All three sites used audiovisual materials. Classroom instructional strategies included the direct approach, the audiolingual method, and the total physical response method.

At Liberty High School, project students used the *Side by Side* series published by Prentice Hall, the *Turning Points* series published by Newbury House, and *English Across Curriculum* published by Addison Wesley. At Lower East Side Preparatory, students used *Life Line* published by Prentice Hall and *English for a Changing World* published by Scott Foresman and Co. At Richmond Hill High School, students used *Great American Stories* published by Prentice Hall and Regent Publishing Company's *Everyday Dialogues in English* and *Practical Conversation in English*.

- Seventy percent of targeted students will show an appropriate increase in English language proficiency.

Evaluation Instrument: Language Assessment Battery (LAB)*

Pretest: May 1991; posttest: May 1992.

Number of students for whom pre- and posttest data were reported: 362

Percent of students with pretest/posttest gains: 33.4

Mean gain: 2.7 N.C.E.s (s.d.=7.5)*

Mean gain is statistically significant (t=6.91, p<.05).

Although the mean gain was significant, the percentage of students showing gains was much smaller than expected.

Project did not meet objective for E.S.L.

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*OREA used a gap reduction design to evaluate the effect of supplementary instruction on project students' performance on the LAB. Since all LEP students in New York City are entitled to such instruction, no valid comparison group exists among these students, and OREA used instead the group on which the LAB was normed. Test scores are reported in Normal Curve Equivalents (N.C.E.s), which are normalized standard scores with a mean of 50 and a standard deviation of 21.06. It is assumed that the norm group has a zero gain in N.C.E.s in the absence of supplementary instruction and that participating students' gains are attributable to project services.

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Native Language Arts (N.L.A.)

Students lacking literacy skills in their native language (estimated): Spanish 65 percent, Chinese 20 to 30 percent.

N.L.A. CLASSES

High School	Level	Periods Weekly	Students Enrolled	
			Spanish	Chinese
Liberty	Literacy	5 Spanish	41	--
	Beginning	10 Spanish, 5 Chinese	89	23
	Intermediate	5 Spanish, 5 Chinese	46	27
Lower East Side	Literacy	5 Chinese	--	85
	Beginning	5 Chinese	--	20
	Intermediate	5 Chinese	--	63
	Advanced	5 Chinese	--	7
Richmond Hill	Literacy	5 Spanish	60	--
	Beginning	5 Spanish	70	--
	Intermediate	5 Spanish	20	--

The project focused on basic literacy as well as oral and written expression. Instructional strategies included dramatizations, oral discussions, expository writing, and group presentations.

At Richmond Hill High School, a language laboratory was available; students there used the text *Vivencias* published by Holt, Rinehart and the novel *El coronel no tiene quien le escriba* by Gabriel García Márquez. Classroom discussion topics included introductions to the school, the community, and New York City. At Lower East Side High School, students used the text *Yü Wen*. At Liberty High School, Chinese language arts texts included *Chinese Language* by Leung Yi Sheng and materials developed by the Asian Bilingual Curriculum Development Center of Seton Hall University. Texts for Spanish language arts included *Cuentos* by Ignacio Aldecoa, *Español para los hispanos* by Pauline Baker, and novels such as *Don Quijote de la Mancha* by Miguel Cervantes.

- Seventy-five percent of Chinese-speaking students will show a significant increase in Chinese language achievement.
- Seventy-five percent of participating Spanish-speaking students will show a significant increase in Spanish language proficiency.

Evaluation Indicator: final course grades.

PASSING GRADES IN NATIVE LANGUAGE ARTS

Language	Enrollment		Percent Passing	
	Fall	Spring	Fall	Spring
Chinese	53	69	92.5	92.8
Spanish	258	132	94.2	87.1

Project met objective for N.L.A.

Content Area Subjects

Students received five periods of instruction a week in each of the content area subjects of mathematics, science, and social studies. Richmond Hill High School offered project students three levels of mathematics, seven social studies courses, and three science courses. Two social studies courses and one science course were taught with an E.S.L. approach; all others were taught in English supplemented by Spanish. Lower East Side Prep offered project students four levels of mathematics, two social studies courses, and three science courses. Two social studies courses were taught bilingually; all other courses were in Chinese. Liberty High School offered two science courses in Chinese, six mathematics courses (two in Chinese, two in Spanish, one in both Spanish and Chinese, and one in English with an E.S.L. approach), and two social studies courses in both Spanish and Chinese. At all three sites, texts and other instructional materials were in both English and students' native languages. See Appendix B for a list of text books used.

- Seventy percent of all targeted students will score at or above the passing criterion of 65 in content area subjects.

Evaluation Indicator: final course grades.

PASSING GRADES IN CONTENT AREA COURSES

High School

		Fall		Spring	
	Subject	Enrollment	Percent Passing	Enrollment	Percent Passing
Lower East Side	Mathematics	19	68.4	52	78.8
	Science	22	86.4	29	89.7
	Social Studies	26	84.6	68	85.3
Liberty	Mathematics	171	97.1	45	97.8
	Science	N/A	N/A	N/A	N/A
	Social Studies	171	96.5	46	100.0
Richmond Hill	Mathematics	149	57.7	140	57.1
	Science	106	82.1	100	81.0
	Social Studies	160	76.9	159	62.3

At Lower East Side Preparatory the project met the objective except for mathematics in the fall. At Liberty High School, the project met the objective for mathematics and social studies, but data was not available to evaluate the science content area subject. At Richmond Hill High School, the project met the objective for science in both the fall and spring, and social studies in the fall, but did not meet the objective for mathematics either semester.

Project partially met objective for content area subjects.

Attitude Toward School

Staff reported that bilingual guidance, tutoring services, and extracurricular activities were significant in improving students' attitude toward school. Richmond Hill High School established a buddy system to help new students adjust socially and academically. Staff there also helped project students plan their elective courses. At Lower East Side Preparatory, project students participated in a Chinese cultural club and pooled their own resources to establish a Chinese language library. Staff reported that students' involvement in the club enabled them to plan their own activities, resulting in greater and more active participation.

- As a result of participating in the program, the students will demonstrate an improvement in attitude toward school.

Evaluation Instrument: OREA-developed 5-point Likert scale.

Data were available for 289 students, 90.0 percent of whom demonstrated an improvement in attitude toward school.

Project met objective for attitude toward school.

Attitude Toward Heritage

All three sites implemented a number of activities designed to improve students' attitude toward their cultural heritage and to help them adjust to the school environment.

Richmond Hill High School had an international welcoming committee for new students and held an international festival. Project students at this site contributed articles to the school's three magazines. Native language instruction bolstered students' attitude toward their culture. At Lower East Side Prep, activities included workshops on cultural heritage and cultural pride, a trip to the Chinese Information Center, and student and parent participation in the annual bilingual parent conference. Project students at Lower East Side Prep actively participated in a Chinese Cultural Club. At Liberty High School, students went to the Spanish Repertory Theater and celebrated the major holidays of project students' native land.

- Seventy-five percent of students will demonstrate an improvement in attitude toward their heritage by showing an increase of at least one scale unit on a 5-point scale.

Evaluation Instrument: Language Cultural Heritage Attitude Scale (5-point Likert scale).

Data were available for 289 students, 86.4 percent of whom demonstrated an improvement in attitude toward their heritage by an increase of at least one scale unit on the Language Cultural Heritage Attitude scale.

Project met objective for attitude toward heritage.

Cultural Enrichment

- The program will organize at least two field trips for the targeted students at the three school sites to historical museums, United Nations, White House, etc., to increase their familiarity with American culture.

Students at Richmond Hill High School visited Ellis Island, Old Bethpage Restoration Village, Rockefeller Center, and other sites. Trips taken by students from Lower East Side Prep included Independence Hall and the Franklin Institute in Philadelphia, Washington D.C., the Statue of Liberty, Ellis Island, AT&T Infoquest, West Point, and Radio City Music Hall. Students from Liberty High School went to the United Nations, the Statue of Liberty, the American Museum of Natural History, and the New York City Public Library.

Project met objective for cultural enrichment.

Career Development

- All graduating students will meet with the bilingual career specialists for advisement at least three times during the school year.

At Lower East Side Prep, career advisors met with students individually and in groups throughout the school year. At Richmond Hill High School, students met with the college advisor at least twice each term and had ongoing meetings with counselors and program advisors. At Liberty High School, staff reported that the bilingual career specialist met with all graduating students.

Project met its career development objective for advisement of graduating students.

- The program will organize at least one conference for students in which representatives of business and industry will present information on career options and skill requirements.

Chinese-speaking project students from Liberty High School and Lower East Side Prep attended the citywide Asian Bilingual Career Day at the Long Island University Brooklyn campus in the spring. Representatives from the fields of law, architecture, journalism, civil services, medicine, business, and finance gave presentations.

Liberty High School held a career conference in the spring for Spanish-speaking students. Representatives from the police department and other municipal services and from the fields of art and physical therapy made presentations. In addition, the resource specialist at Liberty High School organized a number of career-oriented field trips to the Fashion Institute of Technology, Bridge Community Nursery, and various police precincts. (The resource specialist at Liberty High School also helped ten project students find after-school employment through the city's Training Opportunities Program.)

Richmond Hill High School held a career conference in the spring and organized a series of career and college workshops in conjunction with representatives from York College. Staff also took students to the New York State Job and Career Center.

Project met career conference objective.

Other Activities

Staff offered project students classes in computer literacy and incorporated the use of computers into E.S.L. instruction.

Attendance

Project staff presented attendance awards and engaged in ongoing parent contact and bilingual guidance services in an effort to improve students' attendance. Staff reported that the project enabled students to develop friendships and a sense of belonging that also enhanced attendance. At Richmond Hill High School, project staff held evening roundtable sessions with students and their families to discuss any problems including attendance. The resource specialist at Richmond Hill High School reported that 40 project students achieved perfect attendance during the 1991-92 academic year.

- As a result of participating in the program, students' attendance will be significantly higher than that of mainstream students.

Evaluation Indicator: attendance records.

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ATTENDANCE RATES

Site	Project Students	Mainstream Students	Difference
Liberty High School	98.0	---	---
Lower East Side Prep	90.5	83.8	6.7*
Richmond Hill High School	88.0	87.4	0.6

*$p < .05$

Mainstream data were not available for Liberty High School. Project met objective for attendance only at Lower East Side Prep.

Project partially met objective for attendance.

Dropout Prevention

Project staff continued their after-school tutorial program in an effort to reduce the dropout rate. In addition, staff reported that school-based after-school enrichment activities such as ethnic awareness clubs and sports teams enabled students to develop a greater sense of belonging.

- As a result of participating in the program, the dropout rate will be significantly lower than that of similar non-program students.

Evaluation Indicator: school records.

DROPOUT RATES

Site	Project Students	Mainstream Students	Difference
Liberty High School	0.0	1.9	-1.9*
Lower East Side Prep	0.0	7.1	-7.1*
Richmond Hill High School	3.0	1.1	1.9

*$p < .05$

Project HI-CLASS met its objective for dropout prevention at Liberty and Lower East Side Prep High Schools but not at Richmond Hill High School.

Project partially met objective for dropout prevention.

Grade Retention

One-hundred and seventy-nine students (32.0 percent) were retained in grade, an increase of 23.7 percent over the previous year.

Enrollment in Post-secondary Institutions

No graduating students were reported to have applied for enrollment in post-secondary institutions. Last year, the project did not report these figures.

Students with Special Academic Needs

Referral to special education. Teachers made referrals to counselors and to Title VII staff where necessary. Teachers based their assessment on students' conduct and academic achievement and made referrals as necessary to the School-based Support Team (S.B.S.T.), which recommended students for placement in appropriate programs. Project did not report any data.

Remedial programs. No students were referred to remedial programs. Last year, the project did not report these figures.

Gifted and talented programs. No students were recommended to school-based programs for the gifted and talented. Last year, the project did not report these figures.

Mainstreaming

Project HI-CLASS mainstreamed 56 students (10.0 percent of participants), 54 of them at Lower East Side Preparatory, and 2 at Richmond Hill High School. This was an increase of 47 students over last year.

Academic achievement of former project students in mainstream. The project had mainstreamed nine of the previous year's participants but did not report their performance.

Staff Development

The project held a workshop on bilingual teaching methodologies which drew teachers, including some from outside the project, from several schools. During the spring, weekly staff development meetings on alternative teaching methods were held for project teachers from Lower East Side Prep.

- Ninety percent of program staff will enroll in at least one university course each semester.

Two staff members (29 percent) enrolled in university courses during the 1991-92 school year, one for a total of three credits and the other for a total of six.

Project did not meet staff development objective for university enrollment. The project director stated that project staff will encourage attendance in the next year.

Efforts to increase teachers' awareness of pupil needs and problems were undertaken at all three sites. At Lower East Side Prep, workshops were offered on Chinese culture and on working with school staff to understand and meet student needs. At Richmond Hill High School, project staff held cultural sensitivity workshops for school personnel and made presentations on students' backgrounds and family expectations. Students added to staff awareness by speaking about their experiences and problems as immigrants. At Liberty High School, staff discussed student needs and progress at departmental meetings throughout the year.

- Eighty percent of program staff will improve at least one scale point in awareness of pupil needs and problems.

Evaluation Instrument: OREA-developed 5-point Likert scale.

Data were available from 26 school staff, 96.2 percent of whom demonstrated an increased awareness of pupil needs and 88.5 percent of whom demonstrated an increased awareness of pupil problems.

Project met staff development objective for increased awareness of pupil needs and problems.

Curriculum Development

In conjunction with other Title VII programs, project staff developed Chinese-language curriculum materials for sequential mathematics, United States government, global studies, and economics. They developed Spanish-language curriculum materials in global studies, computer literacy, and information technology, as well as other occupationally oriented materials. They also prepared Spanish-language worksheets in mathematics and chemistry and a bilingual science glossary. Project HI-CLASS did not propose any objectives for curriculum development for the current year.

Parental Involvement

Parents visited students' classrooms, met with their teachers, and participated in school fundraising activities. Parents attended the citywide annual Chinese Parents' Conference. At Liberty High School, the project offered evening E.S.L. classes for parents. Project staff at Richmond Hill High School offered joint guidance and E.S.L. tutoring services for students and their parents. Project parents at Richmond Hill High School took evening E.S.L. and general education diploma (G.E.D.) courses offered by the school. Richmond Hill High School had a Parent Advisory Committee. At Lower East Side Prep, staff held workshops for parents on housing and health.

- The proportion of program students' parents who participate in Open School Day/Evening will be equal to or greater than the proportion of mainstream students' parents who participate in this activity.

Evaluation Indicator: program records.

One hundred percent of project parents at all three sites participated in Open School Day/Evening. For mainstream parents, 85 percent participated at Richmond Hill High School, 90 percent at Liberty High School, and 70 percent at Lower East Side Prep High School participated.

Project met objective for parental involvement.

CASE HISTORY

Z.Z. came to the United States from Shanghai and was working in a Chinese restaurant as a delivery boy when he was in a car accident. He could no longer work, so he registered at Liberty High School. He was put into Project HI-CLASS where he received much personal attention and counseling. He was eventually mainstreamed into Washington Irving High School and graduated with honors this year. He was awarded a scholarship from Fashion Institute of Technology.

APPENDIX A

DATA COLLECTION AND ANALYSIS

COLLECTION

OREA evaluation consultants visit sites and interview key personnel. The project director gathers data and, with the consultant, completes forms (as shown below) as necessary.

Student Data Form

This one-page form is filled out by staff for each participating and mainstreamed student. OREA gathers data from this form on backgrounds, demographics, academic outcomes, attendance, referrals, and exit from the program.

Project Director's Questionnaire

The Project Director's Questionnaire includes questions on staff qualifications, program implementation, periods of instruction, and instructional materials and techniques.

Project Director's Interview

The interview gathers information on program and student or staff characteristics not supplied by the Project Director's Questionnaire. The interview also allows project staff to offer qualitative data or amplify responses to the questionnaire.

Citywide Test Scores

OREA retrieves scores centrally from the Language Assessment Battery (LAB) and other citywide tests. For evaluation purposes, these test scores are reported in Normal Curve Equivalents (N.C.E.s). N.C.E.s are normalized standard scores with a mean of 50 and a standard deviation (s.d.) of 21.06. They constitute an equal-interval scale in which the distance is the same between any two adjacent scores. A gain of 5 N.C.E.s is the same whether it is at the lower or the higher end of the scale. N.C.E.s can be used in arithmetic computations to indicate group progress. (Percentile scales, although more familiar to many, are unsuitable for such computations since they are not equal-interval.)

Likert-Type Surveys

Likert-type surveys, in which respondents mark their opinions on a scale from one to five, are used in a variety of ways. They examine student attitudes (i.e., toward school and career, native language use, and native and mainstream cultures). They also assess staff and parent attitude and reactions to workshops and other activities.

ANALYSIS

Gap Reduction Evaluation Design

OREA uses a gap reduction design for measuring changes in standardized tests. Since no appropriate non-project comparison group is available in New York City, where all students of limited English proficiency (LEP) are entitled to receive supplementary services, OREA compares the progress of participating students with that of the group on which the test was normed. It is assumed that the norm group would show a zero gain in the absence of instruction, and gains made by project students could be

attributed to project services. Scores are reported in Normal Curve Equivalents (N.C.E.s), which are normalized standard scores with a mean of 50 and a standard deviation of 21.06. (See "Citywide Test Scores" above.)

To test whether pre/posttest gains are greater than could be expected by chance alone, OREA uses a *t*-test. To test whether a difference between two proportions (e.g., program and mainstream attendance rates) is greater than could be expected by chance, OREA uses a *z*-test and reports the differences between the two proportions. The level of significance is set at .05 for all tests.

Techniques For Minimizing Error

The evaluation procedures minimize error by providing for proper administration of evaluation instruments through a combination of testing at 12-month intervals, appropriate analysis procedures and reporting.

Instruments of measurement include the LAB (see above), the Degrees of Reading Power (D.R.P.) test, the Metropolitan Achievement Test--Mathematics (MAT-Math), El Examen de Lectura en Español (ELE), Likert-type scales (see above), and project-developed tests. Except for Likert scales and project-developed tests, these instruments are scored on a citywide basis at the Scan Center of the New York City Public Schools.

APPENDIX B

INSTRUCTIONAL MATERIALS FOR CONTENT AREA SUBJECTS

Mathematics

Algebra	A. Baldor	Lectorum Publishing
Exito en las matemáticas		Silver Burdett
Fundamentos	New York City Board of Education	
Glosario Bilingüe	New York City Board of Education	
Repaso de matemáticas		
Sequential Mathematics I	Dressel and Keenan	Amsco, 1980
Sequential Mathematics II	Dressel and Keenan	Amsco, 1980
Sequential Mathematics III	Dressel and Keenan	Amsco, 1980

Social Studies

Canadá y América Latina		Silver Burdett
Europa, Africa, Asia y América		Silver Burdett
Foundations in America 1	Schwack	Globe
Foundations in America 2	Schwack	Globe
World History 3	Abromowitz	Globe
World History 4	Abromowitz	Globe
Global Studies--A Regents Review Text	John Osborne	N & N Publishing, 1988

Science

Physical Science	Ramsey & Gabriel	Holt, Reinhart
Biología		Silver Burdett
Brief Review in Earth Science	Callister	Prentice Hall, 1989